

### **REMARKS**

Claims 1-8 and 11-18 and 32-53 are pending. Claims 32-53 have been newly added. Support for newly added claims 32-47 can be found at page, lines 8-28; page 12, lines 12-24; page 19; page 28, lines 11-17, and in the claims as filed. No new matter is added by way of these newly added claims. The claim amendments are presented in a revised format per the USPTO's announcement 'Amendments in a Revised Format Now Permitted', signed 31 January 2002, and accordingly do not conform to the current reading of 37 C.F.R. §1.121, which Applicants understand has been waived. Accordingly, a complete listing of all claims that are, or were in the application, along with an appropriate status identifier, is provided above in the section entitled "Amendments to the Claims".

### **Double patenting rejection**

Claims 1-8 and 11-18 are rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims (1-16 and 27-30); (22-38 and 57-58) of U.S. Patent No. 6,327,410; 6,023,540 respectively. Applicants will submit a terminal disclaimer if necessary and appropriate when there is an indication of allowable subject matter.

### **Claim rejections based under 35 U.S.C. § 102**

Claims 1-8 and 11-18 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Walt (USP 4,822,746) or Walt (USP 5,143,853). Applicants note that the Examiner cited to U.S. patent No. 4,822,747 in the office action, which was invented by Johnson et al., not by Walt. Applicants believe the Examiner meant to cite to U.S Patent No. 4,822,746 ( Walt et. al.) and Applicants have responded accordingly. Applicants respectfully traverse.

Claim 1, from claims 2-8 depend is directed to an analytical chemistry system which includes a population of beads including separate subpopulations each carrying chemical functionalities which changes an optical signature of the beads in the presence of target analytes. In addition, beads in each subpopulation each have an optical signature which is encoded with a description of the chemical functionality carried by a particular subpopulation. Claim 11, from which claims 12-28 depend, is directed to a chemical analysis method which includes preparing separate subpopulation of beads, each bead carrying chemical functionalities which change optical signatures of the beads in the presence of target analytes, encoding the optical signature of each bead in each subpopulation, detecting changes in optical signatures indicative of the presence of target analyte, and decoding the optical signature of the beads to identify the chemical functionalities.

In contrast, Walt et al. USP 4,822,746 and Walt et al. USP 5,143,853 are directed to radiative and non-radiative energy transfer and absorbance modulated fluorescence detection methods and sensors. The methods employ fiber optic sensors in combination with flourophores and/or proto-absorber substances in mobile and immobilized modes of use. Both Walt et al. references are silent with respect to separate subpopulations of beads each having an optical signature which is further encoded with a description of a chemical functionality carried by that particular subpopulation.

The law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention *SSIH Equipment S.A.v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983). As stated by the Federal Circuit in *In re Bond*, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990), "[f]or a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference." (Emphasis added). See also *Glaverbel Societe Anonyme v. Northlake Marketing & Supply, Inc.*, 33 USPQ2d 1496 (Fed. Cir. 1995).

Here each and every element is not present in the prior art. As stated above, the Walt et al. references are silent with respect to separate subpopulations of beads each having an optical signature that changes in the presence of a target analyte and an encoding optical signature which is encoded with a description of a chemical functionality carried by that particular subpopulation. These are elements of both claims 1 and 11, from which all other claims depend. Therefore, the cited prior art does not anticipate the claims and the rejection is improper. Applicants respectfully request the withdrawal of the rejection.

Claims 1-8 and 11-18 are rejected under 35 U.S.C § 102(e) as being clearly anticipated by Walt et al. (USP 5,814,524). Applicants respectfully traverse.

Claims 1 and 11 are discussed above and are incorporated at this point by reference.

Walt et al. is directed to an optical sensor apparatus for far-field viewing and imaging as well as for the optical detection and analytical measurement of at least one species of analyte in a remotely-positioned fluid sample. The Examiner states that the cited prior art teaches chemistry systems comprising a population of beads encoded with fluorescent dyes. Although, Walt et al. discusses beads as being used as the remotely positioned solid substrate (see Walt et al. at column 17, lines 6), Walt is silent with respect to multiple subpopulations of beads where each subpopulation is encoded with an optical signature descriptive of a chemical functionality for that particular subpopulation of beads and in addition each subpopulation carrying the chemical functionality in which the chemical functionality is capable of changing another optical signature of the beads in the presence of targeted analytes.

As stated previously, the law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention *SSIH Equipment S.A.v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983).

Here each and every element is not present in the prior art. As stated above, Walt et al. is silent with respect to separate subpopulations of beads each having an optical signature that changes in the presence of a target analyte and an encoding optical signature which is encoded with a description of a chemical functionality carried by that particular subpopulation. Therefore, the cited prior art does not anticipate the claims and the rejection is improper. Applicants respectfully request the withdrawal of the rejection.

Claims 1-8 and 11-18 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by Ryan et al. Applicants respectfully traverse.

Ryan et al. is directed to phosphor-explosive material combination and method wherein a small amount of inorganic phosphor is mixed with explosive material to provide an indicia or label of information regarding the explosive. Ryan et al. does not disclose beads carrying chemical functionalities and encoded with an optical signature. Further, Ryan et al. does not disclose separate subpopulations of beads carrying a chemical functionality, and further Ryan does not disclose each subpopulation of beads is encoded with an optical signature descriptive of the chemical functionality of that subpopulation and further does not disclose that subpopulation of beads carrying the chemical functionality also carries an optical signature that changes in the presence of the target analyte.

Claims 1 and 11, from which all other claims depend are discussed above and are incorporated at this point by reference.

The Examiner states that Ryan et al. teach a population of small particles carrying a chemical functionality that facilitates identification of the particle which has been read on the claimed analytical system containing a population of beads carrying a chemical signature.

See office action at page 3. However, the particles referred to in Ryan are the labels themselves and not distinctive or separate elements from beads or particles which carry a

chemical functionality. In contrast, beads of the claimed invention are distinct from the optical signature they carry.

The combination of phosphors in Ryan et al. are mixed together in the form of small conglomerates which are dispersed throughout the explosive. When the explosive is detonated, even though shattering of the conglomerates will occur, the recovered conglomerates will contain a sampling of phosphor particles used for identification. See Ryan et al. at column 5, lines 1-12. However, Ryan et al. does not teach or suggest beads carrying a chemical functionality or separate subpopulations of beads each carrying a chemical functionality and where each bead is encoded with an optical signatures which change in the presence of target analyte and in addition another optical signature descriptive of the chemical functionality as claimed in the present invention.

As stated previously, the law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention *SSIH Equipment S.A.v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983).

Here each and every element is not present in the prior art. As stated above, Ryan does not disclose beads carrying a chemical functionality and further does not disclose beads encoded with different optical signatures used to determine identity of the chemical functionality and to determine presence or absence of target analyte. Furthermore, Ryan et. al does not disclose a subpopulation of beads. Therefore, the cited prior art does not anticipate the claims and the rejection is improper. Applicants respectfully request the withdrawal of the rejection.

Claims 1-8 and 11-18 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by Anderson et al. (USP 5, 677, 187). Applicants respectfully traverse.

Anderson et al. is directed to tagging chemical compositions through the use of at least two different rare elements of the periodic table which are foreign to the chemical

composition. The invention finds use in identifying the source of a chemical supply as the tagging agent containing the rare elements are introduced into the storage vessel containing the chemical supply. Anderson et al. does not disclose the use of optical signatures on beads. Nor does Anderson disclose beads carrying chemical functionalities.

The Examiner states that Anderson et al. teaches the use of at least two rare elements impregnated in a polymer bead to create a unique tag for subsequent identification. Although Anderson does disclose the use of polymer beads comprising the at least two rare elements in a continuous matrix for subsequent collection and analysis, the analysis disclosed in Anderson uses either chromatographic techniques or mass spectroscopy measurements, not optical or spectral measurements. The use of an optical signature carried on beads is not disclosed in Anderson. Furthermore the beads of Anderson do not carry a separate chemical functionality as claimed in the present invention. The only time beads are discussed in Anderson is for the application of containing the rare element tagging agents in the beads for subsequent collection of the bead by either sink and float techniques, magnets or where a colored bead can be collected visually for determination of source of the chemical supply. See Anderson et al. at column 8, lines 52-64. And, again the analysis of the presence of the rare elements is not by optical or spectral measurement, but by chromatographic techniques and mass spectroscopy. See Anderson et al. at column 6, lines 66-67; column 7, lines 1-19. The beads in Anderson do not carry a separate chemical functionality which changes an optical signature of the beads in the presence of a target analyte as claimed in the present invention.

As stated previously, the law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention *SSIH Equipment S.A. v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983).

Here each and every element is not present in the prior art. As stated above, Anderson

et al. does not disclose beads carrying a chemical functionality and further Anderson does not disclose beads encoded with an optical signature. In addition, Anderson et. al does not disclose a subpopulation of beads. These are all elements of the claimed invention and are not present in Anderson. Therefore, the cited prior art does not anticipate the claims and the rejection is improper. Applicants respectfully request the withdrawal of the rejection.

In conclusion, none of the cited prior art anticipate the claims of the present invention for all of the foregoing reasons. Accordingly the rejection is improper and Applicants respectfully request the withdrawal of the rejection.

**CONCLUSION**

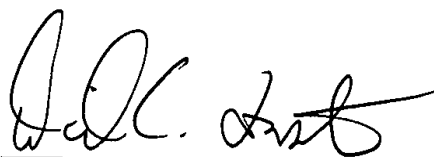
Applicants respectfully submit that the claims are now in condition for allowance and early notification to that effect is respectfully requested. If the Examiner feels there are further unresolved issues, the Examiner is respectfully requested to phone the undersigned at (415) 781-1989.

Respectfully submitted,

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